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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

12

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Nurillock (sp?)  
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10/29/02

AG/2

<b>Office Action Summary</b>	<b>Applicati n No.</b> 09/658,784	<b>Applicant(s)</b> RAAIJMAKERS ET AL.	
	<b>Examiner</b> Rudy Zervigon	<b>Art Unit</b> 1763	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the c rrespondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 May 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-61 and 63-67 is/are pending in the application.
- 4a) Of the above claim(s) 23-56 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-13,22 and 61 is/are allowed.
- 6) ☒ Claim(s) 1-6,15-21,57,58 and 63-66 is/are rejected.
- 7) ☒ Claim(s) 14, 59, 60, and 67 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 06 May 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>8</u> . | 6) <input type="checkbox"/> Other:  |

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## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: "206" (sealing portion, Page 16, lines 17-19 – Figure 11A). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign not mentioned in the description: "406" (Figure 11A). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 15-21, 57, 58, and 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joe Wytman (EP0834907A2).

Joe Wytman describes:

1. 1. A load lock (item 10, Figures 1-3; column 6, lines 12-23) that defines at least partially a first chamber (item 14, Figures 1-3; column 6, lines 12-23) and an auxiliary chamber (item 30/12, Figures 1-3; column 7, lines 17-50), the load lock comprising:

2. a first port (item 18, Figures 1-3; column 6, lines 8-10) and a second port (item 16, Figures 1-3; column 6, lines 1-6), the first and second ports for moving a wafer into and out of the load lock ; an elevator plate (item 22, Figures 1-3; column 6, lines 12-23) including a wafer carrier (item 11, Figures 1-3; column 6, lines 1-11) that is adapted for receiving a plurality of wafers (items W, Figures 1-3; column 5, lines 54-58); and the wafer carrier being moveable (items 26, 28; Figures 1-3; column 6, lines 24-42) between a first position (Figure 3) where the wafer carrier is in the first chamber and a second position (Figure 2) where the wafer carrier is in the auxiliary chamber and the elevator plate substantially seals (items 32, 24; Figures 1-3; column 7, lines 17-50) the auxiliary chamber from the first chamber.

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3. 2. A load lock as set forth in Claim 1, wherein the load lock is formed at least in part by a first housing portion (item 14, Fig. 1-3; column 6, lines 12-23) and an auxiliary housing portion that is removably (26, 28, 34; Fig. 1-3; column 6, lines 24-42, column 7, lines 25-30) coupled to the first portion (item 14, Fig. 13; column 6, lines 12-23).

4. 8. A load lock port as set forth in Claim 7, wherein the load lock comprises a first housing portion and an auxiliary housing portion that at least partially defines (see common wall, Fig. 1-3) the auxiliary chamber, the first and second ports being located on the first housing portion.

5. 10. A load lock as set forth in Claim 9, wherein the first port communicates with a wafer handling module (item 102, Fig. 1-3; column 9, lines 19-47).

6. 18. A load lock as set forth in Claim 1, wherein the auxiliary chamber includes inner walls (volume enclosing item 30) that are adapted to withstand an auxiliary fluid (column 7, lines 51-58).

7. 20. A load lock as set forth in Claim 1, wherein the load lock further includes heating elements (item 47, Figure 1; column 7, lines 54-55).

8. 21. A load lock as set forth in Claim 20, wherein the heating elements are located within the auxiliary chamber.

9. 57. A system for processing substrates, comprising a load lock chamber including a lower portion having a first inner width and an upper portion (item 30/12, Figures 1-3; column 7, lines 17-50) having a narrower second inner width (Figures 1-3, where 47's rest), the chamber

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including a first port and a second port, each of the ports sized to pass substrates there through, the load lock chamber further comprising a moveable platform, with shelves (holding wafers "W"), configured to support at least one substrate thereon and sized to have a width (Figures 1-3) less than the first inner width (Figures 1-3) and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon and including gas injectors (40, 44; Fig.1); an auxiliary processing system, or "auxiliary processing solution source" (page 7, lines 8-13), described by Wytman as items 40 and 44 of Figure 1; Wytman eludes to clean room connectivity of the load lock chamber (column 1, lines 23-24).

However, Joe Wytman does not describe:

10. 1. A wafer carrier that is attached or is not attached to the elevator plate.
11. 15. A load lock wherein the load lock further includes a second elevator plate - The reproduction of apparatus components has been held to obvious. See MPEP 2144.04.
12. 57. At least one process chamber selectively communicating with the substrate handling chamber.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the Wytman wafer carrier to the elevator plate.

Motivation for attaching the Wytman wafer carrier to the elevator plate is drawn from the level of ordinary skill in the art at the time the invention was made where such an attachment would insure that the wafer carrier would not tip over during transfer between Wytman's upper chamber

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12 and Wytman's lower chamber 14 so that robot 102 would secure and transfer the wafer onto further processing (column 9, lines 19-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an additional elevator plate above or below the Wytman elevator plate (22).

Motivation for adding an additional elevator plate above or below the Wytman elevator plate (22) is drawn from the level of ordinary skill in the art whereby by adding additional elevator plates the seal between Wytman's chambers 14 and 12, for a constant force provided through conveying mechanism 26, would provide enhanced hermeticity between these chambers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to selectively communicate at least one process chamber with the substrate handling chamber (item 100, Figure 1).

Motivation for selectively communicating at least one process chamber with the substrate handling chamber is drawn from the level of ordinary skill in the art and is discussed by Joe Wytman (column 1, lines 13-24), and is directed to "processing typically occurs within high vacuum process chambers".

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*Allowable Subject Matter*

3. Claims 7-13, 22 and 61 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art to claim 22 is to Joe Wytman (EP0834907A2) who teaches a load lock wherein the heating elements are located upon the "sub-chamber"/ "upper chamber" interface (auxiliary chamber 30, Fig.1) as apposed to the elevator plate as claimed. The closest prior art to claim 61 is to Joe Wytman (EP0834907A2) who teaches wherein the first port, as defined in claim 61 as the interface between the "substrate handling chamber" and the "load lock chamber" is located in the lower portion (item 14, Figures 1-3) of the load lock. However, amended claim 61 requires that the first port be located in the upper portion. Claim 7 now requires "first and second ports open into said first chamber when said elevator plate is in said second position". The closest prior art to Joe Wytman (EP0834907A2) teaches a second position (Figure 2) for the elevator plate 22. However, the elevator plate and associated seals do not permit second port (16, Figure 1) to "open into said first chamber" (14, Figures 1,2).

5. Claims 14, 59, 60, and 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



***Response to Arguments***

1. Applicant's arguments filed May 8, 2002 have been fully considered but they are not persuasive.

2. Applicant's position that it would not have been obvious to attach Wytman's wafer carrier to the elevator plate is not convincing. In particular, temporarily affixed wafer cassettes on elevated platforms are common in the art and serve to stabilize the cassette platforms along the transit of the wafers.

3. Applicant's position that "...the second elevator plate is not a mere reproduction of an apparatus component because the second elevator plate has an entirely different function than the first elevator plate. Specifically, the second elevator plate substantially seals the auxiliary chamber from the first chamber when the wafer carrier is in the second position." is acknowledged as shown in Figure 11a. However, to the identical credit accorded the Wytman (EP0834907A2) patent, Wytman offers an elevator plate (22, Figure 1) that "substantially seals [24, Figure 1] the auxiliary chamber [12] from the first chamber [14] when the wafer carrier is in the second position [Figure 1,2]." Additional elevator plates as item 26, Figure 11 of the present application would be obvious to those of ordinary skill in the art at the time the invention was made. As stated in the prior office action, "motivation for adding an additional elevator plate above or below the Wytman elevator plate (22) is drawn from the level of ordinary skill in the art whereby by adding additional elevator plates the seal between Wytman's chambers 14 and 12, for a constant force provided through conveying mechanism 26, would provide enhanced hermeticity between these chambers." Moreover, those of ordinary skill in the art would consider adding additional elevator plates to the Wytman apparatus when a fewer number of

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wafers are processed or the height of the wafer carrier is shorter than the height of the heating elements (47, Figure 1) for heating the region within the sub-chamber as discussed by Wytman (column 7, lines 54-56).

4. With respect to Applicant's position that Wytman does not teach an "auxiliary chamber includes inner walls that are adapted to withstand an auxiliary fluid and wherein said auxiliary fluid comprises HF vapor" because Wytman only teaches "a load lock, which is configured to heat and degas the wafer with an inert gas" is not convincing. Specifically, it is well established that apparatus claims are distinguished from the prior art in terms of structural limitations. See MPEP 2114.

5. In response to applicant's argument that "Such cassettes are not configured for withstanding processing gases, such as, for example HF vapor.", and "the treatment gas injectors [in the upper chamber] communicate with a source of HF vapor", and "the treatment gas injectors [in the upper chamber] communicate with an oxidant source", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

6. With respect to Applicant's position that Wytman does not teach "a load lock chamber including a lower portion having a first inner width and an upper portion attached to the lower portion.". It is established that Wytman does teach a load lock chamber with a lower portion (14)

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having a first inner width and an upper portion (item 30/12, Figures 1-3; column 7, lines 17-50) attached to the lower portion as shown in Figure 1.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

**GREGORY MILLS**  
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